

Applicant: Mancv et al.
Serial No.: 10/675,695
Atty Docket: 060726.00023

IN THE CLAIMS:

1. (Currently Amended) A positive electrode material for a lithium-ion or lithium-ion polymer battery, having the formula



wherein M is one or more transition metals different than Ni and Co, $X+Y+Z=1$, $X[\geq Y] \geq 0$, $Z < 0.5$, $0.001 < k+m+n < 0.3$, and $k+n < 0.1m$.

2. (Original) The positive electrode material of claim 1 wherein $k+n < 0.01m$.
3. (Original) The positive electrode material of claim 1 wherein $k+n < 0.001m$.
4. (Cancelled)
5. (Currently Amended) The positive electrode material of claim [[4]] 1 wherein $k+n < 0.01m$.
6. (Currently Amended) The positive electrode material of claim [[4]] 1 wherein $k+n < 0.001m$.
7. (Original) The positive electrode material of claim 1 prepared by exposing the positive electrode material at a temperature of 0-650°C to a CO₂-containing gas having a partial pressure of CO₂ in the range of 0.0001-100 atm to convert LiOH to Li₂CO₃.

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8. (Original) The positive electrode material of claim 7 further prepared by heating the positive electrode material to a temperature of at least 250°C in the presence of an oxygen-containing gas having a partial pressure of O₂ in the range of 0.01-99 atm to convert LiHCO₃ to Li₂CO₃.
9. (Original) The positive electrode material of claim 1 prepared by heating the positive electrode material to a temperature of at least 250°C in the presence of an oxygen-containing gas having a partial pressure of O₂ in the range of 0.01-99 atm to convert LiHCO₃ to Li₂CO₃.
10. (Original) The positive electrode material of claim 1 prepared by heating the positive electrode material to a temperature of 250-500°C in the presence of an oxygen-containing gas having a partial pressure of O₂ in the range of 0.01-99 atm to convert LiHCO₃ to Li₂CO₃ and in the presence of a CO₂-containing gas having a partial pressure of CO₂ in the range of 0.0001-100 atm to convert LiOH to Li₂CO₃.
11. (Currently Amended) A lithium ion battery comprising a positive electrode material of the formula
- $$\text{LiNi}_x\text{Co}_y\text{M}_z\text{O}_2 \cdot (\text{LiOH})_k(\text{Li}_2\text{CO}_3)_m(\text{LiHCO}_3)_n$$
- wherein M is one or more transition metals different than Ni and Co, $X+Y+Z=1$, $X[(\geq Y)] \geq 0$, $Z < 0.5$, $0.001 < k+m+n < 0.3$, and $k+n < 0.1m$.
12. (Original) The lithium ion battery of claim 11 wherein $k+n < 0.01m$.

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13. (Original) The lithium ion battery of claim 11 wherein $k+n < 0.001m$.
14. (Cancelled)
15. (Currently Amended) The lithium ion battery of claim ~~[[14]]~~ 11 wherein $k+n < 0.01m$.
16. (Currently Amended) The lithium ion battery of claim ~~[[14]]~~ 11 wherein $k+n < 0.001m$.
17. (Original) The lithium ion battery of claim 11 wherein the positive electrode material is prepared by exposing the positive electrode material at a temperature of 0-650°C to a CO₂-containing gas having a partial pressure of CO₂ in the range of 0.0001-100 atm to convert LiOH to Li₂CO₃.
18. (Original) The lithium ion battery of claim 17 wherein the positive electrode material is further prepared by heating the positive electrode material to a temperature of at least 250°C in the presence of an oxygen-containing gas having a partial pressure of O₂ in the range of 0.01-99 atm to convert LiHCO₃ to Li₂CO₃.
19. (Original) The lithium ion battery of claim 11 wherein the positive electrode

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material is prepared by heating the positive electrode material to a temperature of at least 250°C in the presence of an oxygen-containing gas having a partial pressure of O₂ in the range of 0.01-99 atm to convert LiHCO₃ to Li₂CO₃.

20. (Original) The lithium ion battery of claim 11 wherein the positive electrode material is prepared by heating the positive electrode material to a temperature of 250-500°C in the presence of an oxygen-containing gas having a partial pressure of O₂ in the range of 0.01-99 atm to convert LiHCO₃ to Li₂CO₃ and in the presence of a CO₂-containing gas having a partial pressure of CO₂ in the range of 0.0001-100 atm to convert LiOH to Li₂CO₃.